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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Xiao-Dong Li et al. **Examiner**: Sujatha R. Sharma
Serial No: 09/708,782 **Art Group**: 2684
Filing Date: November 8, 2000 **Docket No**: 13215ROUS01U
Title: APPARATUS AND METHOD FOR SUPPORTING DIFFERENTIATED PACKET DATA SERVICES WITHIN A WIRELESS NETWORK

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APPEAL BRIEF PURSUANT TO 37 C.F.R. § 41.37

In accordance with a Notice of Appeal filed on October 12, 2004, Applicants hereby submit this Appeal Brief. December 12, 2004 fell on a Sunday and thus, the two-month deadline for filing this Appeal Brief ends on December 13, 2004 (today). Enclosed herewith is a credit card payment form for the fee of $500 for filing a brief in support of an appeal. If any petition fee for an extension of time or any other additional fee is required, the undersigned attorney directs the office to debit such fee from deposit account number 50-2126.

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A. Real Party in Interest

All rights to the above referenced patent application have been assigned to:

Nortel Networks Limited
2351 Boulevard Alfred-Nobel
St. Laurent, Quebec
Canada, H4S 2A9

B. Related Appeals and Interferences

There are no known other appeals or interferences that would directly or indirectly affect the Board's decision in the present appeal.

C. Status of the Claims

Claims 1-46 are pending. Claims 1-13 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Willars (U.S. Patent No. 6,507,567) in view of Garner (U.S. Patent No. 6,542,739). While not explicitly stated in the Final Office Action mailed July 12, 2004, Applicants infer that claims 14-29 and 42-44 also stand rejected over Garner in view of Willars. Claims 30-41 and 45-46 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Willars (U.S. Patent No. 6,507,567) and Garner (U.S. Patent No. 6,542,739) in view of Einola et al. (U.S. Patent No. 6,438,370, "Einola").

D. Summary of claimed subject matter

All pending claims are directed to the servicing of packet data communications by a wireless network. In particular, pending claims are directed to coordinating the allocation of Radio Access Network (RAN) resources of the wireless in an attempt to meet a packet service quality level indicator of a packet data communication.

Independent claims 1, 14, 30, 35, 42, 45 and 46

Independent claim 1 is directed to a method for managing a RAN to service forward link packet data transmissions. The RAN receives a data packet that is intended for a serviced Mobile Station (MS) (step 406 of FIG. 4, text at page 24, lines 1-14). The RAN maps the packet service quality level indicator to a corresponding set of RAN resources and attempts to allocate the corresponding set of RAN resources to service the transmission of the data packet to the MS (step 408 of FIG. 4, text at page 24, lines 14-21). Upon a partial allocation of the corresponding set of RAN resources, the RAN responds to the packet data network indicating the partial allocation (steps 410, 416, and 420 of FIG. 4, text at page 24, line 21 though page 26, line 8). Upon a full allocation of the corresponding set of RAN resources, the RAN responds to the packet data network indicating the full allocation. Further, upon at least a partial allocation of the corresponding set of RAN resources, the RAN forwards the data packet to the MS (step 422, page 25, lines 10-13).

Independent claim 14 is directed to a Packet Data Serving Node (PDSN) that interacts with the RAN and performs operations consistent with the limitations of independent claim 1. The PDSN 114 couples the RAN 122 to an IP network 116 from which packet data is received (FIG. 1, text at page 12, line 21 to page 19, line 18).

Independent claim 30 is directed to a Base Station Controller (BSC) that interacts

with the RAN and performs operations consistent with the limitations of independent claim 1. The BSC 110 couples to the PDSN 114 from which packet data is received (FIG. 1, text at page 12, line 21 to page 19, line 18). As contrasted to the limitations of independent claim 14, in which the PDSN 114 performed the operations of independent claim 1, with independent claim 30, the BSC 110 performs the operations of independent claim 1.

Independent claim 36 is directed to a Packet Control Function (PCF) that interacts with the RAN and performs operations consistent with the limitations of independent claim 1. The PCF 111A or 111B couples to the PDSN 114 from which packet data is received (FIG. 1, text at page 12, line 21 to page 19, line 18). As contrasted to the limitations of independent claim 14, in which the PDSN 114 performed the operations of independent claim 1, with independent claim 30, the PCF 111A or 111B performs the operations of independent claim 1.

Independent claim 42 is directed to a computer readable medium having instructions that, upon execution, cause a PDSN 114 to perform the operations of independent claim 1. Independent claim 45 is directed to a computer readable medium having instructions that, upon execution, cause a BSC 110 to perform the operations of independent claim 1. Independent claim 46 is directed to a computer readable medium having instructions that, upon execution, cause a PCF 111A or 111B to perform the operations of independent claim 1.

Independent claim 9

Independent claim 9 is directed to a method for managing a RAN to service reverse link packet data transmissions requires. The RAN (BSC/PCF) receives a data packet from a Mobile Station (MS) serviced by the RAN (step 904 of FIG. 9, text at page

35, lines 3-4). The RAN (BSC/PCF) then determines a set of RAN resources that have been allocated to service the transmission of the data packet and maps the allocated set of RAN resources to a RAN service quality level indicator (step 906 of FIG. 9, text at page 35, lines 4-10). When the packet service quality level indicator does not correspond to the RAN service quality level indicator, the RAN remarks the data packet with a new packet service quality level indicator corresponding to the RAN service quality level indicator (steps 910 and 912 of FIG. 9, text at page 35, line 13 - page 36, line 1).

Independent claims 20, 43, and 44

Independent claim 20 is directed to a BSC that operates in conjunction with other components of the RAN to service a MS. In doing so, the BSC receives data packet from the serviced MS (step 806 of FIG. 8, text at page 33, lines 13-22). The BSC then determines a set of allocated RAN resources that are servicing the transmission of the data packet to the packet data network and maps the allocated set of RAN resources to a RAN service quality level indicator (step 808 of FIG. 8, text at page 33, line 22 - page 34, line 2). Then, when the packet service quality level indicator does not correspond to the RAN service quality level indicator, the BSC indicates to the PDSN a new packet service quality level indicator corresponding to the RAN service quality level indicator (steps 812 and 814 of FIG. 8, text at page 34, lines 10-18).

Independent claim 25 is directed to a Packet Control Function (PCF) that performs operations consistent with the limitations of claim 20. The PCF 111A or 111B couples to, or resides within, the BSC 110. The PCF 111A or 111B receives the packet data that was transmitted from the MS (FIG. 1, text at page 12, line 21 to page 19, line 18).

Independent claim 43 is directed to a computer readable medium having instructions

that, upon execution, cause a BSC 110 to perform operations consistent with the limitations of independent claim 20.

Independent claim 44 is directed to a computer readable medium having instructions that, upon execution, cause a PCF 111A or 111B to perform the operations of independent claim 20.

E. Grounds of rejection to be reviewed on appeal

The applicants contend that:

1. Claims 1-13, 14-29, and 42-44 are not unpatentable under 35 U.S.C. 103(a) over Willars (U.S. Patent No. 6,507,567) in view of Garner (U.S. Patent No. 6,542,739).

2. Claims 30-41 and 45-46 are no unpatentable under 35 U.S.C. 103(a) over Willars (U.S. Patent No. 6,507,567) and Garner (U.S. Patent No. 6,542,739) in view of Einola et al. (U.S. Patent No. 6,438,370, "Einola").

3. Claims 30-41 and 45-46 are not unpatentable under 35 U.S.C. 103(a) as being over Willars (U.S. Patent No. 6,507,567) and Garner (U.S. Patent No. 6,542,739) in view of Einola et al. (U.S. Patent No. 6,438,370, "Einola").

F. Argument:

i. Claims 1-8, 14-19, and 42 are not unpatentable over Willars in view of Garner

As described above, independent claim 1 requires, inter alia, (1) upon a partial allocation of a set of RAN resources, responding to the packet data network indicating the partial allocation; and (2) upon a full allocation of the corresponding set of RAN resources, responding to the packet data network indicating the full allocation.

Willars is directed to the allocation (and deallocation) of Radio Access Network (RAN, UTRAN for UMTS Terrestrial RAN) resources in order to meet a desired Quality of Service (QoS) requirement (Col. 2, line 13 et seq.). Remaining portions of Willars describe various techniques for such allocation (and deallocation). Among other shortcomings, Willars fails to address interaction between the RAN and a Packet Data Service Node (PDSN) when RAN resource allocation is: (1) not available; or (2) only partially available. The Final Office Action mailed July 12, 2004 cedes these shortcomings of Willars. To meet the shortcomings of Willars, the Final Office Action cites Garner.

Garner discloses a satellite communication system that interfaces to a number of entities. These entities are required to access the satellite system for various purposes. (See FIG. 3 and related text at col. 2, line 59 to col. 3, line 67) One entity that may require access to the satellite communication system is the Aeronautical Mobile Satellite (R) Service [AMS(R)S] system. "The AMS(R)S system requires special protection because of the safety aspects of its use. AMS(R)S using the satellites will be managed as an independent network, with its own control system managing real-time access to its radio channels and GESs. These AMS(R)S radio channels are assigned to frequencies

that are not typically shared with or frequency reused by other MSS carriers operating in other networks using the satellites. This segregation of frequencies, although not required, minimizes the changes for interference to AMS(R)S and simplify [sic] the operations of the system as a whole." (Garner col. 77, lines 9-20).

The Final Office Action attempts to equivalence Garner's allocation of satellite communication system resources by the AMS(R)S system with the limitation of independent claim 1 of the allocation of RAN resources to service a packet data communication. This equivalencing is incorrect. With Garner, one system (the AMS(R)S system) takes over the operation of the allocated resources of another system (the satellite communication system). In the case of independent claim 1, RAN resources are allocated only to service a packet data transmission. The packet data network simply passes the packet data to the RAN. It does not take over control of the RAN. Thus, the allocation of satellite system resources as disclosed in Garner cannot be properly equivalenced with the allocation of RAN resources to service a forward link packet data transmission required by independent claim 1. Thus, Garner fails to meet the shortcomings of Willars and independent claim 1 is not unpatentable over Willars in view of Garner. Claims 2-8 depend from independent claim 1 and are not unpatentable over Willars in view of Garner for these same reasons.

Independent claim 14 is directed to a Packet Data Serving Node (PDSN) that interacts with the RAN and performs operations consistent with the limitations of independent claim 1. For the reasons provided above, independent claim 14 is not unpatentable over Willars in view of Garner. Claims 15-19 depend from independent claim 14 and are not unpatentable over Willars in view of Garner for these same reasons.

Independent claim 42 is directed to a computer readable medium having instructions that cause a PDSN 114 to perform the operations of independent claim 1. For the reasons provided above, independent claim 42 is not unpatentable over Willars in view of Garner.

ii. Claims 30-41 and 45-46 are not unpatentable over Willars and Garner in view of Einola

Independent claim 30 is directed to a Base Station Controller (BSC) that interacts with the RAN and performs operations consistent with the limitations of independent claim 1. As argued above, independent claim 1 is not unpatentable over Willars in view of Garner. Thus, independent claim 30 is also not unpatentable over these references. Einola is cited as teaching that "the BSC indicates to the SGSN/PDSN the successful allocation of resources." (Einola at col. 11, lines 35-46). Einola fails to meet the shortcomings of Willars and Garner relating to reporting of a partial allocation of RAN resources as required by independent claim 30. Thus, for these reasons, independent claim 30, and claims 31-35 that depend therefrom, are not unpatentable over Willars and Garner in view of Einola.

Independent claim 36 is directed to a Packet Control Function (PCF) that interacts with the RAN and that performs operations consistent with the limitations of independent claim 1. For the reasons cited above with reference to independent claim 30, independent claim 36, and claims 37-41 that depend therefrom, are not unpatentable over Willars and Garner in view of Einola.

Independent claim 45 is directed to a computer readable medium having instructions that, upon execution, cause a BSC 110 to perform the operations of independent claim 1. For the reasons cited above with reference to independent claim 30, independent claim 45 is not unpatentable over Willars and Garner in view of Einola.

Independent claim 46 is directed to a computer readable medium having instructions that, upon execution, cause a PCF 111A or 111B to perform the operations of independent

claim 1. For the reasons cited above with reference to independent claim 30, independent claim 46 is not unpatentable over Willars and Garner in view of Einola.

iii. Claims 9-13 are not unpatentable over Willars in view of Garner

As described above, independent claim 9 requires, inter alia, (1) receiving a data packet from a Mobile Station (MS) serviced by the RAN; (2) determining a set of RAN resources that have been allocated to service the transmission of the data packet; (3) mapping the allocated set of RAN resources to a RAN service quality level indicator; and (4) when the packet service quality level indicator does not correspond to the RAN service quality level indicator, remarking the data packet with a new packet service quality level indicator corresponding to the RAN service quality level indicator.

In the Final Office Action, the Examiner cites Willars as meeting these limitations. Applicants respectfully traverse this assertion. Willars fails to disclose, suggest, or even address remarking of data packets from a mobile station as required by claim independent 9. Further, Garner fails to address the remarking of data packets as required by independent claim 9. No where in the Final Office Action are the limitations of independent claim 9 even addressed. Claims 10-13 depend from claim 9. Thus, claims 9-13 are not unpatentable over Willars in view of Garner.

iv. Claims 20-29 and 43-44 are not unpatentable over Willars in view of Garner

As described above, independent claim 20 is directed to a Base Station Controller (BSC) that (1) receives a data packet from a Mobile Station (MS) serviced by the RAN, (2) determines a set of allocated RAN resources that are servicing the transmission of the data packet to the packet data network; (3) maps the allocated set of RAN resources to a RAN service quality level indicator; and (4) when the packet service quality level indicator does not correspond to the RAN service quality level indicator, indicates to the PDSN a new packet service quality level indicator corresponding to the RAN service quality level indicator.

Willars fails to disclose, among other things, for packets received from a MS, (a) mapping allocated RAN resources to a RAN service quality level indicator; and (b) indicating to the PDSN a new packet service quality level indicator corresponding to the RAN service quality level indicator as required by independent claim 20. Garner fails to meet these shortcomings of Willars. Thus, independent claim 20 is not unpatentable over Willars in view of Garner. Claims 21-24 depend from independent claim 1 and are also not unpatentable over Willars in view of Garner.

Independent claim 25 is directed to a Packet Control Function (PCF) that performs operations similar to/same as the operations performed by the BSC of independent claim 20. Claims 26-29 depend from claim 25. For the reasons cited above, claims 25-29 are not unpatentable over Willars in view of Garner.

Independent claim 43 is directed to a computer readable medium having instructions that, upon execution, cause a BSC 110 to perform the operations of independent claim 20. For the reasons cited above, independent claim 43 is not

unpatentable over Willars in view of Garner.

Independent claim 44 is directed to a computer readable medium having instructions that, upon execution, cause a PCF 111A or 111B to perform the operations of independent claim 20. For the reasons cited above, independent claim 44 is not unpatentable over Willars in view of Garner.

G. Conclusions

For the above-provided reasons, the Appellants respectfully request that all of the rejections of the Final Office Action be overturned and that the claims in the present application be allowed to issue.

RESPECTFULLY SUBMITTED,

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CERTIFICATE OF MAILING
37 C.F.R 1.8

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December 13, 2004
Date

_____
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H. Claims Appendix

1. (previously presented) A method for managing Radio Access Network (RAN) resources to service forward link packet data transmissions, the method comprising:

receiving a data packet from a packet data network, the data packet directed toward a Mobile Station (MS) serviced by the RAN and including a packet service quality level indicator;

mapping the packet service quality level indicator to a corresponding set of RAN resources;

attempting to allocate the corresponding set of RAN resources to service the transmission of the data packet to the MS;

upon a partial allocation of the corresponding set of RAN resources, responding to the packet data network indicating the partial allocation;

upon a full allocation of the corresponding set of RAN resources, responding to the packet data network indicating the full allocation; and

upon at least a partial allocation of the corresponding set of RAN resources, forwarding the data packet to the MS.

2. (original) The method of independent claim 1, further comprising, upon a partial allocation of the corresponding set of RAN resources remarking the data packet with a new packet service quality level indicator, the new packet service quality level indicator corresponding to the partial allocation of the corresponding set of RAN resources.

3. (original) The method of claim 2, further comprising:

receiving another data packet from the packet data network directed toward the MS that includes the packet service quality level indicator; and

remarking the another data packet with the new packet service quality level indicator.

4. (original) The method of independent claim 1, wherein mapping the packet service quality level indicator to the corresponding set of RAN resources comprises:

determining that the packet service quality level indicator requires a specific performance level; and

determining a corresponding set of RAN resources that will satisfy the specific performance level.

5. (original) The method of independent claim 1, further comprising:

determining whether the corresponding set of RAN resources may be allocated to the MS; and

when the corresponding set of RAN resources may not be allocated to the MS, not attempting to allocate the full corresponding set of RAN resources.

6. (original) The method of independent claim 1, wherein mapping the packet service quality level indicator to the corresponding set of RAN resources comprises:

determining that the packet service quality level indicator requires a differential service level;

determining a plurality of sets of RAN resources supported for the MS; and

selecting a one of the plurality of sets of RAN resources supported for the MS that satisfies the differential service level.

7. (original) The method of independent claim 1, further comprising:

receiving another data packet from the packet data network directed toward the MS that includes a different packet service quality level indicator;

mapping the different packet service quality level indicator to a corresponding different set of RAN resources;

attempting to allocate the corresponding different set of RAN resources to the MS; and

upon an allocation of the corresponding different set of RAN resources, forwarding the data packet to the MS.

8. (original) The method of independent claim 1, further comprising notifying a Packet Data Servicing Node (PDSN) of a packet service quality level corresponding to an allocated set of RAN resources.

9. (original) A method for managing Radio Access Network (RAN) resources to service reverse link packet data transmissions, the method comprising:

receiving a data packet from a Mobile Station (MS) serviced by the RAN, the data packet intended for a coupled packet data network and including a packet service quality level indicator;

determining a set of RAN resources that have been allocated to service the

transmission of the data packet;

mapping the allocated set of RAN resources to a RAN service quality level indicator; and

when the packet service quality level indicator does not correspond to the RAN service quality level indicator, remarking the data packet with a new packet service quality level indicator corresponding to the RAN service quality level indicator.

10. (original) The method of claim 9, further comprising:

receiving another data packet from the MS intended for the coupled packet data network that includes the packet service quality level indicator; and

remarking the another data packet with the new packet service quality level indicator.

11. (original) The method of claim 9, wherein mapping the allocated set of RAN resources to the RAN service quality level indicator comprises:

determining that the packet service quality level indicator requires a specific performance level; and

determining a RAN service quality level indicator that maps to the specific performance level.

12. (original) The method of claim 9, wherein mapping the allocated set of RAN resources to the RAN service quality level indicator comprises:

determining that the packet service quality level indicator requires a differential

service level;

determining a RAN precedence level corresponding to the allocated set of RAN resources;

determining a plurality of RAN precedence levels supported for the MS; and

determining a differential RAN service quality level indicator that corresponds to the allocated set of RAN resources.

13. (original) The method of claim 9, further comprising:

receiving another data packet from the MS serviced by the RAN, the another data packet intended for the coupled packet data network and including a different packet service quality level indicator;

determining a different set of allocated RAN resources that are servicing the transmission of the data packet to the packet data network;

mapping the different set of allocated RAN resources to a different RAN service quality level indicator; and

when the different packet service quality level indicator does not correspond to the different RAN service quality level indicator, remarking the another data packet with another packet service quality level indicator corresponding to the different RAN service quality level indicator.

14. (previously presented) A Packet Data Serving Node (PDSN) that interfaces a Radio Access Network (RAN) to a packet network, the PDSN comprising:

a processor coupled to a processor bus;

memory coupled to the processor via the processor bus;

a first interface coupled to the processor bus that interfaces the PDSN to the packet network;

a second interface coupled to the processor bus that interfaces the PDSN to the RAN; and

the memory storing a set of instructions executable by the processor, the set of instructions comprising:

a plurality of instructions that, upon execution by the processor, cause the PDSN to receive a data packet from the packet data network, the data packet directed toward a Mobile Station (MS) serviced by the RAN and including a packet service quality level indicator;

a plurality of instructions that, upon execution by the processor, cause the PDSN to interact with the RAN to map the packet service quality level indicator to a corresponding set of RAN resources;

a plurality of instructions that, upon execution by the processor, cause the PDSN to interact with the RAN in attempting to allocate the corresponding set of RAN resources to service the transmission of the data packet to the MS;

a plurality of instructions that, upon execution by the processor, cause the PDSN to, upon a partial allocation of the corresponding set of RAN resources, respond to the packet data network indicating the partial allocation;

a plurality of instructions that, upon execution by the processor, cause the PDSN to, upon a full allocation of the corresponding set of RAN resources, respond to the packet data network indicating the full allocation; and

a plurality of instructions that, upon execution by the processor, cause the PDSN to, upon at least a partial allocation of the corresponding set of RAN resources, forward the data packet to the MS via the RAN.

15. (original) The Packet Data Serving Node of independent claim 14, wherein the set of instructions further comprise a plurality of instructions that, upon execution by the processor, cause the PDSN to, upon a partial allocation of the corresponding set of RAN resources, remark the data packet with a new packet service quality level indicator, the new packet service quality level indicator corresponding to the partial allocation of the corresponding set of RAN resources.

16. (original) The Packet Data Serving Node of independent claim 15, wherein the set of instructions further comprise:

a plurality of instructions that, upon execution by the processor, cause the PDSN to receive another data packet from the packet data network directed toward the MS that includes the packet service quality level indicator; and

a plurality of instructions that, upon execution by the processor, cause the PDSN to remark the another data packet with the new packet service quality level indicator.

17. (original) The Packet Data Serving Node of independent claim 14, wherein

when the PDSN maps the packet service quality level indicator to the corresponding set of RAN resources:

the PDSN determines that the packet service quality level indicator requires a specific performance level; and

the PDSN determines that the corresponding set of RAN resources will satisfy the specific performance level.

18. (original) The Packet Data Serving Node of independent claim 14, wherein the set of instructions further comprise:

a plurality of instructions that, upon execution by the processor, cause the PDSN to determine whether a partial set of RAN resources has been allocated to the MS; and

a plurality of instructions that, upon execution by the processor, cause the PDSN to remark the data packet with a new packet service quality level indicator, the new packet service quality level indicator corresponding to the partial set of RAN resources that have been allocated to the MS.

19. (original) The Packet Data Serving Node of independent claim 14, wherein the set of instructions further comprise:

a plurality of instructions that, upon execution by the processor, cause the PDSN to receive another data packet from the packet data network directed toward the MS that includes a different packet service quality level indicator; and

a plurality of instructions that, upon execution by the processor, cause the

PDSN to interact with the RAN to map the different packet service quality level indicator to a corresponding different set of RAN resources.

20. (original) A Base Station Controller (BSC) operating in conjunction with other components of a Radio Access Network (RAN) and interfaced to a Packet Data Serving Node (PDSN), the Base Station Controller comprising:

a processor coupled to a processor bus;

memory coupled to the processor via the processor bus;

a first interface coupled to the processor bus that interfaces the BSC to the PDSN;

a second interface coupled to the processor bus that interfaces the BSC to remaining portions of the RAN; and

the memory storing a set of instructions executable by the processor, the set of instructions comprising:

a plurality of instructions that, upon execution by the processor, cause the BSC to receive a data packet from a Mobile Station (MS) serviced by the RAN, the data packet intended for the PDSN and including a packet service quality level indicator;

a plurality of instructions that, upon execution by the processor, cause the BSC to determine a set of allocated RAN resources that are servicing the transmission of the data packet to the packet data network;

a plurality of instructions that, upon execution by the processor, cause the BSC to map the allocated set of RAN resources to a RAN service quality level indicator; and

a plurality of instructions that, upon execution by the processor, cause the

BSC to, when the packet service quality level indicator does not correspond to the RAN service quality level indicator, indicate to the PDSN a new packet service quality level indicator corresponding to the RAN service quality level indicator.

21. (original) The Base Station Controller of claim 20, the set of instructions further comprising:

a plurality of instructions that, upon execution by the processor, cause the BSC to receive another data packet from the MS intended for the PDSN that includes the packet service quality level indicator; and

a plurality of instructions that, upon execution by the processor, cause the BSC to indicate to the PDSN the new packet service quality level indicator.

22. (original) The Base Station Controller of claim 20, wherein in mapping the allocated set of RAN resources to a RAN service quality level indicator, the Base Station Controller:

determines that the packet service quality level indicator requires a specific performance level; and

determines a RAN service quality level indicator that maps exactly to the allocated set of RAN resources.

23. (original) The Base Station Controller of claim 20, wherein in mapping the allocated set of RAN resources to a RAN service quality level indicator, the BSC:

determines that the packet service quality level indicator requires a differential

service level;

determines a RAN precedence level corresponding to the allocated set of RAN resources;

determines a plurality of RAN precedence levels supported for the MS; and

determines a differential packet service quality level indicator that corresponds to the allocated set of RAN resources.

24. (original) The Base Station Controller of claim 20, the set of instructions further comprising:

a plurality of instructions that, upon execution by the processor, cause the BSC to respond to the PDSN servicing the data packet with an indication of a packet service quality level supported by the RAN.

25. (original) A Packet Control Function (PCF) interfaced to a Base Station Controller (BSC) that operates in conjunction with other components of a Radio Access Network (RAN) and that interfaces to a Packet Data Serving Node (PDSN), the Packet Control Function comprising:

a processor coupled to a processor bus;

memory coupled to the processor via the processor bus;

a first interface coupled to the processor bus that interfaces the PCF to the BSC;

a second interface coupled to the processor bus that interfaces the PCF to the PDSN; and

the memory storing a set of instructions executable by the processor, the set of

instructions comprising:

a plurality of instructions that, upon execution by the processor, cause the PCF to receive a data packet from a Mobile Station (MS) serviced by the RAN, the data packet intended for the PDSN and including a packet service quality level indicator;

a plurality of instructions that, upon execution by the processor, cause the PCF to determine a set of allocated RAN resources that are servicing the transmission of the data packet to the packet data network;

a plurality of instructions that, upon execution by the processor, cause the PCF to map the allocated set of RAN resources to a RAN service quality level indicator; and

a plurality of instructions that, upon execution by the processor, cause the PCF to, when the packet service quality level indicator does not correspond to the RAN service quality level indicator, indicate to the PDSN a new packet service quality level indicator corresponding to the RAN service quality level indicator.

26. (original) The Packet Control Function of claim 25, the set of instructions further comprising:

a plurality of instructions that, upon execution by the processor, cause the PCF to receive another data packet from the MS intended for the PDSN that includes the packet service quality level indicator; and

a plurality of instructions that, upon execution by the processor, cause the PCF to indicate to the PDSN the new packet service quality level indicator.

27. (original) The Packet Control Function of claim 25, wherein in mapping the

allocated set of RAN resources to a RAN service quality level indicator, the Packet Control Function:

determines that the new packet service quality level indicator requires a specific performance level; and

determines a service quality level indicator that maps exactly to the allocated set of RAN resources.

28. (original) The Packet Control Function of claim 25, wherein in mapping the allocated set of RAN resources to a RAN service quality level indicator, the Packet Control Function:

determines that the packet service quality level indicator requires a differential service level;

determines a RAN precedence level corresponding to the allocated set of RAN resources;

determines a plurality of RAN precedence levels supported for the MS; and

determines a differential RAN service quality level indicator that corresponds to the allocated set of RAN resources.

29 (original) The Packet Control Function of claim 25, the set of instructions further comprising:

a plurality of instructions that, upon execution by the processor, cause the PCF to respond to the PDSN servicing the data packet with an indication of a packet service quality level supported by the RAN.

30. (previously presented) A Base Station Controller (BSC) operating in conjunction with other components of a Radio Access Network (RAN) and interfaced to a Packet Data Serving Node (PDSN), the Base Station Controller comprising:

a processor coupled to a processor bus;

memory coupled to the processor via the processor bus;

a first interface coupled to the processor bus that interfaces the BSC to the PDSN;

a second interface coupled to the processor bus that interfaces the BSC to remaining portions of the RAN; and

the memory storing a set of instructions executable by the processor, the set of instructions comprising:

a plurality of instructions that, upon execution by the processor, cause the BSC to receive a request from the PDSN to service packet data transmissions from the PDSN to a MS at a packet service quality level indicator;

a plurality of instructions that, upon execution by the processor, cause the BSC to determine a set of RAN resources that would satisfy the packet service quality level indicator;

a plurality of instructions that, upon execution by the processor, cause the BSC to attempt to allocate the set of RAN resources that would satisfy the packet service quality level;

a plurality of instructions that, upon execution by the processor, cause the BSC to, upon a partial allocation of the corresponding set of RAN resources, respond to the PDSN indicating the partial allocation; and

a plurality of instructions that, upon execution by the processor, cause the BSC to, upon a full allocation of the corresponding set of RAN resources, respond to the PDSN indicating the full allocation.

31. (original) The Base Station Controller of claim 30, the set of instructions further comprising:

a plurality of instructions that, upon execution by the processor, cause the BSC to, upon a full allocation of the corresponding set of RAN resources, to indicate to the PDSN that the packet service quality level indicator corresponding is met.

32. (original) The Base Station Controller of claim 30, the set of instructions further comprising:

a plurality of instructions that, upon execution by the processor, cause the BSC to, upon a partial allocation of the corresponding set of RAN resources, to indicate to the PDSN that the packet service quality level indicator corresponding is partially met.

33. (original) The Base Station Controller of claim 30, the set of instructions further comprising:

a plurality of instructions that, upon execution by the processor, cause the BSC to, upon a failed allocation of the corresponding set of RAN resources, to indicate to the PDSN that the allocation of RAN resources has failed.

34. (original) The Base Station Controller of claim 30, wherein in mapping the

allocated set of RAN resources to a RAN service quality level indicator, the Base Station Controller:

determines that the packet service quality level indicator requires a specific performance level; and

determines a RAN service quality level indicator that maps exactly to the allocated set of RAN resources.

35. (original) The Base Station Controller of claim 30, wherein in mapping the allocated set of RAN resources to a RAN service quality level indicator, the Base Station Controller:

determines that the packet service quality level indicator requires a differential service level;

determines a RAN precedence level corresponding to the allocated set of RAN resources;

determines a plurality of RAN precedence levels supported for the MS; and

determines a differential packet service quality level indicator that corresponds to the allocated set of RAN resources.

36. (previously presented) A Packet Control Function (PCF) interfaced to a Base Station Controller (BSC) that operates in conjunction with other components of a Radio Access Network (RAN) and that interfaces to a Packet Data Serving Node (PDSN), the Packet Control Function comprising:

a processor coupled to a processor bus;

memory coupled to the processor via the processor bus;

a first interface coupled to the processor bus that interfaces the PCF to the BSC;

a second interface coupled to the processor bus that interfaces the PCF to the PDSN; and

the memory storing a set of instructions executable by the processor, the set of instructions comprising:

a plurality of instructions that, upon execution by the processor, cause the PCF to receive a request from the PDSN to service packet data transmissions from the PDSN to a MS at a packet service quality level indicator;

a plurality of instructions that, upon execution by the processor, cause the PCF to determine a set of RAN resources that would satisfy the packet service quality level indicator;

a plurality of instructions that, upon execution by the processor, cause the PCF to attempt to allocate the set of RAN resources that would satisfy the packet service quality level;

a plurality of instructions that, upon execution by the processor, cause the PCF to, upon a partial allocation of the corresponding set of RAN resources, respond to the PDSN indicating the partial allocation; and

a plurality of instructions that, upon execution by the processor, cause the PCF to, upon a full allocation of the corresponding set of RAN resources, respond to the PDSN indicating the full allocation.

37. (original) The Packet Control Function of claim 36, the set of instructions further comprising:

a plurality of instructions that, upon execution by the processor, cause the PCF to, upon a full allocation of the corresponding set of RAN resources, to indicate to the PDSN that the packet service quality level indicator corresponding is met.

38. (original) The Packet Control Function of claim 36, the set of instructions further comprising:

a plurality of instructions that, upon execution by the processor, cause the PCF to, upon a partial allocation of the corresponding set of RAN resources, to indicate to the PDSN that the packet service quality level indicator corresponding is partially met.

39. (original) The Packet Control Function of claim 36, the set of instructions further comprising:

a plurality of instructions that, upon execution by the processor, cause the PCF to, upon a failed allocation of the corresponding set of RAN resources, to indicate to the PDSN that the allocation of RAN resources has failed.

40. (original) The Packet Control Function of claim 36, wherein in mapping the

allocated set of RAN resources to a RAN service quality level indicator, the Packet Control Function:

determines that the packet service quality level indicator requires a specific performance level; and

determines a RAN service quality level indicator that maps exactly to the allocated set of RAN resources.

41. (original) The Packet Control Function of claim 36, wherein in mapping the allocated set of RAN resources to a RAN service quality level indicator, the Packet Control Function:

determines that the packet service quality level indicator requires a differential service level;

determines a RAN precedence level corresponding to the allocated set of RAN resources;

determines a plurality of RAN precedence levels supported for the MS; and

determines a differential packet service quality level indicator that corresponds to the allocated set of RAN resources.

42. (previously presented) A computer readable medium that stores a plurality of software instructions for execution by a Packet Data Serving Node (PDSN) that interfaces a Radio Access Network (RAN) to a packet network, the computer readable medium comprising:

a plurality of instructions that, upon execution by the PDSN, cause the PDSN to receive a data packet from the packet data network, the data packet directed toward a Mobile Station (MS) serviced by the RAN and including a packet service quality level indicator;

a plurality of instructions that, upon execution by the PDSN, cause the PDSN to interact with the RAN to map the packet service quality level indicator to a corresponding set of RAN resources;

a plurality of instructions that, upon execution by the PDSN, cause the PDSN to interact with the RAN in attempting to allocate the corresponding set of RAN resources to service the transmission of the data packet to the MS;

a plurality of instructions that, upon execution by the PDSN, cause the PDSN to, upon a partial allocation of the corresponding set of RAN resources, respond to the packet data network indicating the partial allocation;

a plurality of instructions that, upon execution by the PDSN, cause the PDSN to, upon a full allocation of the corresponding set of RAN resources, respond to the packet data network indicating the full allocation; and

a plurality of instructions that, upon execution by the PDSN, cause the PDSN to, upon an allocation of the corresponding set of RAN resources, forward the data packet to the MS via the RAN.

43. (original) A computer readable medium that stores a plurality of software instructions for execution by a Base Station Controller (BSC) operating in conjunction with other components of a Radio Access Network (RAN) and interfaced to a Packet Data Serving Node (PDSN), the computer readable medium comprising:

a plurality of instructions that, upon execution by the BSC, cause the BSC to receive a data packet from a Mobile Station (MS) serviced by the RAN, the data packet intended for the PDSN and including a packet service quality level indicator;

a plurality of instructions that, upon execution by the BSC, cause the BSC to determine a set of allocated RAN resources that are servicing the transmission of the data packet to the packet data network;

a plurality of instructions that, upon execution by the BSC, cause the BSC to map the allocated set of RAN resources to a RAN service quality level indicator; and

a plurality of instructions that, upon execution by the BSC, cause the BSC to, when the packet service quality level indicator does not correspond to the RAN service quality level indicator, indicate to the PDSN a new packet service quality level indicator corresponding to the RAN service quality level indicator.

44. (original) A computer readable medium that stores a plurality of software instructions for execution by a Packet Control Function (PCF) interfaced to a Base Station Controller (BSC) that operates in conjunction with other components of a Radio Access Network (RAN) and that interfaces to a Packet Data Serving Node (PDSN), the computer readable medium comprising:

a plurality of instructions that, upon execution by the processor, cause the PCF to receive a data packet from a Mobile Station (MS) serviced by the RAN, the data packet intended for the PDSN and including a packet service quality level indicator;

a plurality of instructions that, upon execution by the PCF, cause the PCF to determine a set of allocated RAN resources that are servicing the transmission of the data packet to the packet data network;

a plurality of instructions that, upon execution by the PCF, cause the PCF to map the allocated set of RAN resources to a RAN service quality level indicator; and

a plurality of instructions that, upon execution by the PCF, cause the PCF to, when the packet service quality level indicator does not correspond to the RAN service quality level indicator, indicate to the PDSN a new packet service quality level indicator corresponding to the RAN service quality level indicator.

45. (previously presented) A computer readable medium that stores a plurality of software instructions for execution by a Base Station Controller (BSC) operating in conjunction with other components of a Radio Access Network (RAN) and interfaced to a Packet Data Serving Node (PDSN), the computer readable medium comprising:

a plurality of instructions that, upon execution by the BSC, cause the BSC to receive a request from the PDSN to service packet data transmissions from the PDSN to a MS at a packet service quality level indicator;

a plurality of instructions that, upon execution by the BSC, cause the BSC to determine a set of RAN resources that would satisfy the packet service quality level indicator;

a plurality of instructions that, upon execution by the BSC, cause the BSC to attempt to allocate the set of RAN resources that would satisfy the packet service quality level;

a plurality of instructions that, upon execution by the BSC, cause the BSC to, upon a partial allocation of the corresponding set of RAN resources, respond to the PDSN indicating the partial allocation; and

a plurality of instructions that, upon execution by the BSC, cause the BSC to, upon a full allocation of the corresponding set of RAN resources, respond to the PDSN indicating the full allocation.

46. (previously presented) A computer readable medium that stores a plurality of software instructions for execution by a Packet Control Function (PCF) interfaced to a Base Station Controller (BSC) that operates in conjunction with other components of a Radio Access Network (RAN) and that interfaces to a Packet Data Serving Node (PDSN), the computer readable medium comprising:

a plurality of instructions that, upon execution by the PCF, cause the PCF to receive a request from the PDSN to service packet data transmissions from the PDSN to a MS at a packet service quality level indicator;

a plurality of instructions that, upon execution by the PCF, cause the PCF to determine a set of RAN resources that would satisfy the packet service quality level indicator;

a plurality of instructions that, upon execution by the PCF, cause the PCF to attempt to allocate the set of RAN resources that would satisfy the packet service quality level; ~~and~~

a plurality of instructions that, upon execution by the BSC, cause the BSC to, upon a partial allocation of the corresponding set of RAN resources, respond to the PDSN indicating the partial allocation; and

a plurality of instructions that, upon execution by the BSC, cause the BSC to, upon a full allocation of the corresponding set of RAN resources, respond to the PDSN indicating the full allocation.